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ABSTRACT

This document, which is intended for technology educators in Mississippi, outlines a modular instruction approach that allows eighth graders to experience various workplace technologies within four career cluster areas: agriculture/natural resources technology, business/marketing technology, health/human services technology, and engineering/industrial technology. Presented first are a course description, list of course goals, and course outline. The remainder of the guide is divided into two sections. Section I, the curriculum framework, lists suggested behavioral objectives to enable students to master the 19 competencies addressed in the course. Section II consists of outlines for the course's 10 units on the following topics: introduction to computer discovery; keyboarding; introduction to Windows; an operating system using Windows; word processing applications; data management applications; spreadsheet applications; telecommunications; desktop publishing; and computers in careers. Each unit outline contains suggested time on tasks, competencies and objectives, teaching strategies, assessment strategies, and resources. A student competency profile is appended. (MN)

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Mississippi Curriculum Framework for Computer Discovery

Mississippi
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1996

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CURRICULUM FRAMEWORK

FOR

COMPUTER DISCOVERY

(8th Grade)

CIP: 00.0252

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COMPUTER DISCOVERY

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COMPUTER DISCOVERY COURSE DESCRIPTION

Computer Discovery uses an innovative multimedia environment to make subject matter come alive. This course is designed to provide fundamental skills in the operation of microcomputers, including an introduction to computers, keyboarding skills, and the operating system using Windows. Real-world applications in word processing, graphics, databases, telecommunications, spreadsheets, and desktop publishing make the course exciting, relevant, and challenging. Each student will compile a Computer Discovery portfolio of computer projects based on the four career cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Health/Human Services Technology, and Engineering/Industrial Technology). This course will integrate communication and mathematics skills. This course will also include expanded basics in problem solving, decision making, critical thinking, human relations, career exploration, planning, and organization skills to prepare students for future careers.

COURSE GOALS

1. To develop competencies in the use of the alphabetic and numeric keyboard by touch.

2. To develop a basic understanding of terminology and applications, components, and care associated with the use of microcomputers.

3. To develop an understanding of information processing principles and associated logical concepts.

4. To develop an understanding of how key computer applications (word processing, database, spreadsheet, graphics, telecommunications, and desktop publishing) are used in a work environment.

5. To develop listening, speaking, reading, and writing skills for students to function successfully on jobs and in life experiences.

6. To develop math skills to analyze numbers to solve problems through basic mathematical operations.

7. To develop competencies in individual responsibility, sociability, self-management, integrity, and leadership.

8. To develop competencies associated with problem solving, decision making, and critical thinking.

9. To develop competencies associated with career planning.

COMPUTER DISCOVERY
COURSE OUTLINE

Unit No.	Unit Name	No. of Days
1	Introduction to Computer Discovery	10
2	Keyboarding	40
3	Introduction to Windows	2
4	Operating System Using Windows	13
5	Word Processing Applications	30
6	Data Management Applications	15
7	Spreadsheet Applications	15
8	Telecommunications	10
8A	Telecommunications	10
9	Desktop Publishing	10
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SECTION I:

CURRICULUM FRAMEWORK

(COMPETENCIES AND SUGGESTED OBJECTIVES)

COMPETENCIES AND SUGGESTED OBJECTIVES

1. Understand basic computer usage.
   a. Describe the uses and the benefits of the computer in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).
   b. Identify and describe the use or function of the basic components of a computer system.
   c. Identify terminology associated with computers including hardware, software, data, CRT, ROM, RAM, peripheral, file, default, copyright laws, documentation, and graphical user interface environment.
   d. Interpret trends and changes as related to one of the four clusters using computers and technology.
   e. Describe the uses and benefits of the computer to related academic skills in math, science, and communications.
   f. Discuss ethics in relation to computer applications.
2. Perform basic computer operations related to computer usage.
   a. Demonstrate precautions and care when working with computers, printers, storage devices, and other accessories.
   b. Discuss and/or illustrate setting up and adjusting a simple computer system.
   c. Discuss and/or demonstrate the ability to adjust monitor controls and load paper into the printer (setting top of form and margins).
3. Analyze career interests and opportunities available.
   a. Complete and review surveys on interests, spare time, school subjects, skills, and summer jobs and develop planning strategies for future careers.
4. Perform basic keyboarding applications.
   a. Demonstrate proper use of the keyboard by touch. (ongoing)
   b. Identify and use the operation/function and numeric keys on a computer keyboard.
5. Understand basic Windows applications.
   a. Identify terminology related to Windows.
6. Perform basic Windows applications.
   a. Use menus, icons, and windows to open and close a window, switch windows, and move between applications.
7. Utilize proper commands for basic operating system applications in Windows.
   a. Explain how the operating system software controls input, processing, and output.
   b. Load and reset a disk operating system (cold boot and warm boot).
   c. Name files following guidelines set by the operating system documentation.
   d. Access different disk drives in a computer system.
   e. Perform fundamental disk operating system commands using a graphical interface (Windows).
8. Perform basic word processing applications.
   a. Use basic word processing commands.

b. Use basic text formatting procedures.
c. Use basic editing/proofing procedures.
d. Store a file to disk, exit and re-enter the program, and retrieve the file.
e. Produce, in hard copy, a memo following an accepted business format.
f. Produce, in hard copy, a letter of application following an accepted business format.
g. Produce, in hard copy, a multi-page report (minimum of 2 pages) following an accepted business format.
h. Demonstrate composition skills by composing and keying answers to sample job interview questions.
i. Create a personal data sheet.
j. Apply word processing applications to related academic skills in math, science, and communications.
k. Apply the uses and the benefits of word processing applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

9. Understand basic data management applications.
   a. Identify terminology used with data management applications.
10. Perform basic data management applications.
   a. Create and save a database file.
   b. Retrieve and manipulate data within a database file.
   c. Generate a report from a database file.
   d. Design, create, and save a database file.
   e. Apply data management applications to related academic skills in math, science, and communications.
   f. Apply the uses and the benefits of data management in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).
11. Understand basic spreadsheet applications.
   a. Identify terminology used with spreadsheet applications.
12. Perform basic spreadsheet applications.
   a. Demonstrate the use of basic spreadsheet format commands.
   b. Write formulas using basic arithmetic operations.
   c. Demonstrate the use of basic spreadsheet functions to include totaling rows or columns, and averaging a range of cells.
   d. Develop, enter and modify data; save, exit, and retrieve; and print a hard copy of a simple spreadsheet file.
   e. Graph spreadsheet data.
   f. Apply spreadsheet applications to related academic skills in math, science, and communications.
   g. Apply the uses and the benefits of spreadsheet applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing

Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

13. Understand basic telecommunication applications.
    a. Define terminology associated with telecommunications.
14. Utilize proper commands to access on-line information.
    a. Perform telecommunication activities.
    b. Research periodicals, newspapers, books, and electronic media (BBS and CD-ROM); interpret data; and give an oral presentation.
    c. Apply telecommunication applications to related academic skills in math, science, and communications.
    d. Apply the uses and the benefits of telecommunication applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).
15. Understand telecommunication networks and applications.
    a. Define terminology associated with telecommunication networks.
    b. Describe the different components of the Internet.
    c. Certify understanding of "appropriate use" policies related to telecommunication networks.
16. Utilize applications of a telecommunication network.
    a. Log-in and log-out of a telecommunication network.
    b. Send and receive messages via e-mail.
    c. Search, retrieve, and download information via gopher.
    d. Search, retrieve, and download information via the World Wide Web.
    e. Apply the uses and the benefits of telecommunication applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).
17. Understand basic desktop publishing applications.
    a. Identify terminology associated with desktop publishing.
18. Perform basic desktop applications.
    a. Open, save, close, and print a document.
    b. Create a page layout.
    c. Use text tools to create, insert, delete, replace, and move text.
    d. Manipulate graphics by moving, sizing, and deleting.
    e. Import graphics and text.
    f. Use drawing tools to create lines, circles, ovals, and rectangles.
    g. Create a desktop publishing document.
    h. Apply desktop publishing applications to related academic skills in math, science, and communications.
    i. Apply the uses and the benefits of desktop publishing applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

19. Recognize the importance of computer literacy and work maturity skills in today's job market.
    a. Assemble a career/educational plan to demonstrate competence in computer-related skills associated with one of the four cluster areas.
    b. Working as part of a team, produce an integrated project related to one of the four cluster areas.

SECTION II:

CURRICULUM

FOR

COMPUTER DISCOVERY

COMPUTER DISCOVERY
UNIT 1: INTRODUCTION TO COMPUTER DISCOVERY (10 days)

Competencies and Suggested Objectives:

1. Understand basic computer usage.
   a. Describe the uses and the benefits of the computer in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).
   b. Identify and describe the use or function of the basic components of a computer system.
   c. Identify terminology associated with computers including hardware, software, data, CRT, ROM, RAM, peripheral, file, default, copyright laws, documentation, and graphical user interface environment.
   d. Interpret trends and changes as related to one of the four clusters using computers and technology.
   e. Describe the uses and benefits of the computer to related academic skills in math, science, and communications.
   f. Discuss ethics in relation to computer applications.
2. Perform basic computer operations related to computer usage.
   a. Demonstrate precautions and care when working with computers, printers, storage devices, and other accessories.
   b. Discuss and/or illustrate setting up and adjusting a simple computer system.
   c. Discuss and/or demonstrate the ability to adjust monitor controls and load paper into the printer (setting top of form and margins).
3. Analyze career interests and opportunities available.
   + a. Complete and review surveys on interests, spare time, school subjects, skills, and summer jobs and develop planning strategies for future careers.

+ Indicates cumulative data for Unit 10: Computers in Careers.

Suggested Teaching Strategies:

Discussion, demonstration, research, and multimedia presentation.

Suggested Assessment Strategies:

1. *Understand basic computer usage.*
   a. *Unit test on the uses and the benefits of the computer in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).*

b. Student assignment to identify and describe the use or function of the basic components of a computer system including central processing unit, input devices, output devices, and storage devices.

c. Student assignment to identify terminology associated with computers including hardware, software, data, CRT, ROM, RAM, peripheral, file, default, copyright laws, documentation, and graphical user interface environment.

d. Student report interpreting trends and changes by researching periodicals, books, newspapers, and/or electronic media; conducting personal interviews; interpreting the data; and reporting technological trends and changes for one of the four cluster areas.

e. Complete assignments describing the uses and benefits of the computer as related to academic skills in math, science, and communications.

f. Student discussion of ethics in relation to computer applications to include copyright laws, viruses, piracy, and privacy.

2. Perform basic computer operations related to computer usage.

a. Performance exercises related to precautions and care when working with computers, printers, storage devices, and other accessories, including basic troubleshooting techniques (checking plugs, cables, and switches).

b. Student assignment to discuss and/or illustrate setting up and adjusting a simple computer system to include connecting power lines and accessory cables.

c. Student assignment to discuss and/or demonstrate the ability to adjust monitor controls and load paper into the printer (setting top of form and margins).

3. Analyze career interests and opportunities available.

+a. Complete and review surveys on interests, spare time, school subjects, skills, and summer jobs and develop planning strategies for future careers.

+ Indicates cumulative data for Unit 10: Computers in Careers.

Suggested References:

Clark, James F. and Oswalt, Beverly. Computer Confidence. (Chapters 1 and 2). Cincinnati, OH: South-Western Publishing Co. 1991.

Communications Week: The Newspaper for Enterprise Networking. Manhasset, NY: CMP Publications, Inc.

COMPUTER DIMENSIONS: An Electronic Instructional Media System for Computer Literacy. Cincinnati, OH: South-Western Publishing Company (developed with Aanowitz Productions, Inc., Mill Valley, CA). 1993.

Electronic Learning. Pittsfield, MA.

Home Office: Computing. Boulder, CO.

Horizons. Cincinnati, OH: South-Western Publishing Company. 1995.

InfoWorld: The Voice of Personal Computing in the Enterprise. San Mateo, CA: InfoWorld Publishing Co.

Keyboarding and Computer Applications. (textbook)

Klemin, V. Wayne and Harsha, Ken. PC Power. Lake Forest, IL: Glencoe/Macmillan/ McGraw Hill. 1991.

Local Career Centers: (references to use)

U.S. Department of Labor, Employment and Training Administration. Dictionary of Occupational Titles (DOT). Washington, D.C:: Superintendent of Documents, U.S. Government Printing Office. 1991.

U.S. Department of Labor, Bureau of Labor Statistics. Occupational Outlook Handbook (OOH). Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office. 1989.

Network World: The Newsweekly of Enterprise Network Computing. Framingham, MA: Network World.

PC Novice Personal Computers in Plain English. Lincoln, NE: Peed Corporation.

PC Today Computing for Small Business. Lincoln, NE: Peed Corporation.

Planning My Future (software program). Ogdensburg, NY: Careerware, IMS Information Systems Management Corporation.

T. H. E. Journal. Tustin, CA: Technological Horizons in Education.

Understanding Computers through Applications. Columbus, OH: Glencoe/Macmillan/ McGraw-Hill. 1993.

Windows User: The PC Power Resource. Boulder, CO.

COMPUTER DISCOVERY
UNIT 2: KEYBOARDING **(40 days)**

Competencies and Suggested Objectives:

1. Perform basic keyboarding applications.
   a. Demonstrate proper use of the keyboard by touch. (ongoing)
   b. Identify and use the operation/function and numeric keys on a computer keyboard.

Suggested Teaching Strategies:

Discussion, demonstration, and multimedia presentation.

Suggested Assessment Strategies:

1. Perform basic keyboarding applications.
   a. Performance exercise to demonstrate proper use of the keyboard by touch typing at a minimum speed of 20 net words per minute on straight copy on a three minute timed writing at the end of the first semester, and 30 net words per minute on straight copy on a three minute timed writing at the end of the year.
   (Note: Students will be expected to master this objective before completing all of the "Computer Discovery" units, not necessarily upon completion of the Keyboarding unit.)
   b. Student assignment to identify and use the operation/function and numeric keys on a computer keyboard.

Suggested References:

COMPUTER DIMENSIONS: An Electronic Instructional Media System for Computer Literacy. Cincinnati, OH: South-Western Publishing Company (developed with Aanowitz Productions, Inc., Mill Valley, CA). 1993.

Haggblade, Berle and Kushner, John. Keyboarding/Typewriting for Personal Applications. Cincinnati, OH: South-Western Publishing Co. 1993.

Haugo, John F., Hausmann, and Jackson, Truman H. Alphabetic Keyboarding. Cincinnati, OH: South-Western Publishing Co. 1994.

Haugo, John F., Hausmann, and Jackson, Truman H. Keyboarding Skill Builder. Cincinnati, OH: South-Western Publishing Co. 1994.

Haugo, John F., Hausmann, and Jackson, Truman H. Numeric Keyboarding. Cincinnati, OH: South-Western Publishing Co. 1994.

Johnson, Jack E. and Stanley, Carole G. Microcomputer Keyboarding and Document Processing. Westerfield, OH: Glencoe/Macmillan/McGraw-Hill. 1993.

KeyRite (5th ed.). South-Western Publishing Co. 1992.

Klemin, V. Wayne and Harsha, Ken. PC Power. Lake Forest, IL: Glencoe/Macmillan/McGraw-Hill. 1990.

Schmidt, B. June and White, Clarence D. "Electronic Keyboarding: Standards for Grading Timed Writings." Business Education Forum. Reston, VA: National Business Education Association.

Understanding Computers through Applications. Columbus, OH: Glencoe/Macmillan/McGraw-Hill. 1993.

COMPUTER DISCOVERY
UNIT 3: INTRODUCTION TO WINDOWS **(2 days)**

Competencies and Suggested Objectives:

1. Understand basic Windows applications.
   a. Identify terminology related to Windows.
2. Perform basic Windows applications.
   a. Use menus, icons, and windows to open and close a window, switch windows, and move between applications.

Suggested Teaching Strategies:

Discussion, demonstration, and multimedia presentation.

Suggested Assessment Strategies:

1. *Understand basic Windows applications.*
   a. *Student assignment to identify terminology related to Windows to include click, double click, click and drag, graphical user interface (GUI), pull-down (drop-down), window, minimize and maximize, restore, desktop, and icon.*
2. *Perform basic Windows applications.*
   a. *Performance exercises for using menus, icons, and windows to open and close a window, switch windows, and move between applications.*

Suggested References:

Brown, Margaret. Microsoft Windows 3.1 - A Quick Study. New York: DDC Publishing Co. 1993.

Documentation for Windows.

Horizons. Cincinnati, OH: South-Western Publishing Company. 1995.

O'Hara, Shelley. Easy Windows 3.1. Que Corporation. 1993.

Windows 3.1 Quick Starts.

COMPUTER DISCOVERY
UNIT 4: OPERATING SYSTEM USING WINDOWS (13 days)

Competencies and Suggested Objectives:

1. Utilize proper commands for basic operating systems applications in Windows.
   a. Explain how the operating system software controls input, processing, and output.
   b. Load and reset a disk operating system (cold boot and warm boot).
   c. Name files following guidelines set by the operating system documentation.
   d. Access different disk drives in a computer system.
   e. Perform fundamental disk operating system commands using graphical interface (Windows).

Suggested Teaching Strategies:

Discussion, demonstration, research, and multimedia presentation.

Suggested Assessment Strategies:

1. *Utilize proper commands for basic operating system applications in Windows.*
   a. *Student discussion explaining how the operating system software controls input, processing, and output.*
   b. *Performance exercise to load and reset an operating system following guidelines set by the operating system documentation.*
   c. *Student assignment to name files following guidelines set by the operating system documentation.*
   d. *Student assignment to access different disk drives in a computer system using operating system documentation.*
   e. *Unit test to perform fundamental operating system commands using both a graphical user interface environment (Windows) including: initializing a diskette; listing files on a diskette; copying files from one diskette to another; copying a diskette; deleting files from a diskette; making backup copies of data files; and making, changing, and removing directories.*

Suggested References:

Windows 3.11 and accompanying documentation.

Brown, Margaret. Microsoft Windows 3.11 - A Quick Study. New York: DDC Publishing Co. 1993.

Clark, James F. and Oswalt, Beverly. Computer Confidence. Cincinnati, OH: South-Western Publishing Co. 1991.

COMPUTER DIMENSIONS: An Electronic Instructional Media System for Computer Literacy. Cincinnati, OH: South-Western Publishing Company (developed with Aanowitz Productions, Inc., Mill Valley, CA). 1993.

Klemin, V. Wayne and Harsha, Ken. PC Power. Lake Forest, IL: Glencoe/Macmillan/ McGraw-Hill. 1990

Understanding Computers through Applications. Columbus, OH: Glencoe/Macmillan/ McGraw-Hill. 1993.

COMPUTER DISCOVERY
UNIT 5: WORD PROCESSING APPLICATIONS (30 days)

Competencies and Suggested Objectives:

1. Perform basic word processing applications.
   a. Use basic word processing commands.
   b. Use basic text formatting procedures.
   c. Use basic editing/proofing procedures.
   d. Store a file to disk, exit and re-enter the program, and retrieve the file.
   + e. Produce, in hard copy, a memo following an accepted business format.
   + f. Produce, in hard copy, a letter of application following an accepted business format.
   + g. Produce, in hard copy, a multi-page report (minimum of 2 pages) following an accepted business format.
   + h. Demonstrate composition skills by composing and keying answers to sample job interview questions.
   + I. Create a personal data sheet.
   j. Apply word processing applications to related academic skills in math, science, and communications.
   k. Apply the uses and the benefits of word processing applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

+ Indicates cumulative data for Unit 10: Computers in Careers.

Suggested Teaching Strategies:

Discussion, demonstration, and multimedia presentation.

Applications for each of the four cluster areas are included in several of the references cited.

Suggested Assessment Strategies:

1. *Perform basic word processing applications.*
   a. *Student assignment to use basic word processing commands to include delete, insert, cursor movement, bold, underline, page numbering, block, block move, and block copy.*
   b. *Student assignment to use basic text formatting procedures to include setting line margins, page length, justification, line spacing, tabs, and page breaks.*

c. *Student assignment to use basic editing/proofing procedures including finding and correcting keyboarding errors; and correcting punctuation, spelling, and grammatical errors.*

d. *Student assignment to store a file to disk, exit and re-enter the program, and retrieve the file.*

+e. *Student assignment to produce, in hard copy, a memo following an accepted business format to the local career center to obtain information on occupations, salary, and educational requirements for one of the four cluster areas.*

+f. *Student assignment to produce, in hard copy, a letter of application following an accepted business format.*

+g. *Student assignment to produce, in hard copy, a multi-page report (minimum of 2 pages) from the information obtained in objective 1-e following an accepted business format.*

+h. *Student assignment to demonstrate composition skills by composing and keying answers to sample job interview questions.*

+i. *Student assignment to create a personal data sheet to include personal information, work experience, honors and activities, special skills, and references.*

j. *Complete assignments using word processing applications as related to academic skills in math, science, and communications.*

k *Complete assignments relating to the uses and the benefits of word processing applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).*

+Indicates cumulative data for Unit 10: Computers in Careers.

Suggested References:

Microsoft Works 3.0 for Windows 3.11 and accompanying documentation.

Activities Handbook for Computer Discovery Courses. Mississippi State, MS: Research and Curriculum Unit. 1993.

Belis, Cynthia Braunstein and Dembo, Shirley Schatz. Keyboarding/Information Processing: Supplementary Applications. Cincinnati, OH: South-Western Publishing Co. 1993.

Blanc, Iris and Hildebrandt, Elinore. Database. New York, NY: Dictation Disc Company. 1990.

Blanc, Iris and Ventro, Cathy. Spreadsheet. New York, NY: Dictation Disc Company. 1986.

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Pasewark, William R., Pasewark, William R. Jr. Microsoft Works 3.0 for Windows Tutorial and Applications. Cincinnati, OH: South-Western Publishing Co. 1995.

Popyk and Maddalena. Humanagement: Activities for Word Processing, Database, Spreadsheet, Graphing and Desktop Publishing. Cincinnati, OH: South-Western Publishing Company. 1993.

Ruby, Ralph, Jr. Real-life Keyboarding Projects. Charleston, WV: J. Weston Walch (Cambridge Career Products). 1990.

Steffee, John. Academic Applications Technology. Cincinnati, OH: South-Western Publishing Co. 1996.

Understanding Computers through Applications. Columbus OH: Glencoe/Macmillan/ McGraw-Hill. 1993.

Wendt, Debra. Computer Applications: Building Skills for School and Work. Eagan, MN: West Publishing Co. 1992.

COMPUTER DISCOVERY
UNIT 6: DATA MANAGEMENT APPLICATIONS (15 days)

Competencies and Suggested Objectives:

1. Understand basic data management applications.
   a. Identify terminology used with data management applications.
2. Perform basic data management applications.
   a. Create and save a database file.
   b. Retrieve and manipulate data within a database file.
   c. Generate a report from a database file.
   d. Design, create, and save a database file.
   e. Apply data management applications to related academic skills in math, science, and communications.
   f. Apply the uses and the benefits of data management in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

Suggested Teaching Strategies:

Discussion, demonstration, and multimedia presentation.

Applications for each of the four cluster areas are included in several of the references cited.

Suggested Assessment Strategies:

1. *Understand basic data management applications.*
   a. *Student assignment to identify terminology used with data management software to include field (category), record, and file.*
2. *Perform basic data management applications.*
   a. *Performance exercise to create and save a database file.*
   b. *Performance exercise to retrieve and manipulate data within a database file to include searching for specific records, editing or adding data to records, sorting, and saving records.*
   c. *Student assignment to generate a report in hard copy from a database file following teacher-established specifications.*
   d. *Performance exercise for students as a group to compile and design, create, and save to disk a database file for the four career cluster areas by establishing fields (categories) to include career cluster area, occupation, salary, education, description, and skills/activities requirements, with each student entering a minimum of 5 records for each career cluster area into the database.*

e. *Complete assignments using data management applications as related to academic skills in math, science, and communications.*
f. *Complete assignments relating to the uses and the benefits of data management in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).*

Suggested References:

A data management program and accompanying documentation.

Activities Handbook for Computer Discovery Courses. Mississippi State, MS: Research and Curriculum Unit. 1993.

Blanc, Iris and Hildebrandt, Elinore. Database. New York, NY: Dictation Disc Company. 1990.

Blanc, Iris and Ventro, Cathy. Spreadsheet. New York, NY: Dictation Disc Company. 1986.

Clark, James F. and Oswalt, Beverly. Computer Confidence. Cincinnati, OH: South-Western Publishing Co. 1991.

Computer Applications for Business. New York, NY: Dictation Disc Company.

COMPUTER DIMENSIONS: An Electronic Instructional Media System for Computer Literacy. Cincinnati, OH: South-Western Publishing Company (developed with Aanowitz Productions, Inc., Mill Valley, CA). 1993.

Groneman and Jaderstrom. Computer Applications. Cincinnati, OH: South-Western Publishing Company. 1994.

Halvorson, Michael. Microsoft Works 3.0 for Windows. Cambridge, MA: Course Technology, Inc. 1995.

Horizons. Cincinnati, OH. South-Western Publishing Company. 1995.

Klemin, V. Wayne and Harsha, Ken. PC Power. Lake Forest, IL: Glencoe/Macmillan/McGraw Hill. 1990.

Local career center.

Pasewark, William R. and Pasewark, William R. Jr. Microsoft Works 3.0 for Windows Tutorial and Applications. Cincinnati, OH: South-Western Publishing Co. 1995.

Popyk and Maddalena. Humanagement: Activities for Word Processing, Database, Spreadsheet, Graphing and Desktop Publishing. Cincinnati, OH: South-Western Publishing Company. 1993.

Ruby, Ralph, Jr. Real-life Keyboarding Projects. Charleston, WV: J. Weston Walch (Cambridge Career Products). 1990.

Steffee, John. Academic Applications Technology. Cincinnati, OH: South-Western Publishing Co. 1996.

Understanding Computers through Applications. Columbus, OH: Glencoe/Macmillan/McGraw-Hill. 1993.

Wendt, Debra. Computer Applications: Building Skills for School and Work. Eagan, MN: West Publishing Co. 1992.

COMPUTER DISCOVERY
UNIT 7: SPREADSHEET APPLICATIONS (15 days)

Competencies and Suggested Objectives:

1. Understand basic spreadsheet applications.
   a. Identify terminology used with spreadsheet applications.
2. Perform basic spreadsheet applications.
   a. Demonstrate the use of basic spreadsheet format commands.
   b. Write formulas using basic arithmetic operations.
   c. Demonstrate the use of basic spreadsheet functions to include totaling rows or columns, and averaging a range of cells.
   +d. Develop, enter and modify data; save, exit, and retrieve; and print a hard copy of a simple spreadsheet file.
   e. Graph spreadsheet data.
   f. Apply spreadsheet applications to related academic skills in math, science, and communications.
   g. Apply the uses and the benefits of spreadsheet applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

+ Indicates cumulative data for Unit 10: Computers in Careers.

Suggested Teaching Strategies:

Teacher discussion, demonstration, and multimedia presentation.

Applications for each of the four cluster areas are included in several of the references cited.

Suggested Assessment Strategies:

1. *Understand basic spreadsheet applications.*
   a. *Student assignment to identify terminology associated with spreadsheet applications including cell, row, column, function, formula, and cell entry (label or value).*
2. *Perform basic spreadsheet applications.*
   a. *Performance exercise to demonstrate the use of basic format commands for spreadsheets to include copy; move; layout of rows, columns, and cells; blanking or erasing values; setting attributes; recalculating; and inserting and deleting rows and columns.*

b. Student assignment to write formulas using the four basic arithmetic operations (addition, subtraction, multiplication, and division).

c. Performance exercise to demonstrate the use of basic spreadsheet functions to include totaling rows or columns, and averaging a range of cells.

+d. Student performance test to develop a simple spreadsheet file for the four career cluster areas (e.g., family budget, candy sales, fruit sales, greenhouse crop expenses, supply budget, shop inventory); enter and modify data; save to disk, exit the program, and retrieve; and print a hard copy.

e. Student assignment to graph spreadsheet data.

f. Complete assignments using spreadsheet applications as related to academic skills in math, science, and communications.

g. Complete assignments relating to the uses and the benefits of spreadsheet applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

+ Indicates cumulative data for Unit 10: Computers in Careers.

Suggested References:

A spreadsheet software package and accompanying documentation.

Activities Handbook for Computer Discovery Courses. Mississippi State, MS: Research and Curriculum Unit. 1993.

Blanc, Iris and Hildebrandt, Elinore. Database. New York, NY: Dictation Disc Company. 1990.

Blanc, Iris and Ventro, Cathy. Spreadsheet. New York, NY: Dictation Disc Company. 1986.

Clark, James F. and Oswalt, Beverly. Computer Confidence. Cincinnati, OH: South-Western Publishing Co. 1991.

Computer Applications for Business. New York, NY: Dictation Disc Company.

COMPUTER DIMENSIONS: An Electronic Instructional Media System for Computer Literacy. Cincinnati, OH: South-Western Publishing Company (developed with Aanowitz Productions, Inc., Mill Valley, CA). 1993.

Groneman and Jaderstrom. Computer Applications. Cincinnati, OH: South-Western Publishing Company. 1994.

Halvorson, Michael. Microsoft works 3.0 for Windows. Cambridge, MA: Course Technology, Inc. 1995.

Horizons. Cincinnati, OH: South-Western Publishing Company. 1995.

Klemin, V. Wayne and Harsha, Ken. PC Power. Lake Forest, IL: Glencoe/Macmillan/McGraw Hill. 1990.

Pasewark, William R. and Pasewark, William R. Jr., Microsoft Works 3.0 for Windows Tutorial and Applications. Cincinnati, OH: South-Western Publishing Co. 1995.

Popyk and Maddalena. Humanagement: Activities for Word Processing, Database, Spreadsheet, Graphing and Desktop Publishing. Cincinnati, OH: South-Western Publishing Company. 1993.

Ruby, Ralph, Jr. Real-life Keyboarding Projects. Charleston, WV: J. Weston Walch (Cambridge Career Products). 1990.

Steffee, John. Academic Applications Technology. Cincinnati, OH: South-Western Publishing Co. 1996.

Understanding Computers through Applications. Columbus, OH: Glencoe/Macmillan/McGraw-Hill. 1993.

Wendt, Debra. Computer Applications: Building Skills for School and Work. Eagan, MN: West Publishing Co. 1992.

COMPUTER DISCOVERY
UNIT 8: TELECOMMUNICATIONS (10 days)
(To be used in labs that do not have access to the Internet)

Competencies and Suggested Objectives:

1. Understand basic telecommunication applications.
   a. Define terminology associated with telecommunications.
2. Utilize proper commands to access on-line information.
   a. Perform telecommunication activities.
   b. Research periodicals, newspapers, books, and electronic media (BBS and CD-ROM); interpret data; and give an oral presentation.
   c. Apply telecommunication applications to related academic skills in math, science, and communications.
   d. Apply the uses and the benefits of telecommunication applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

Suggested Teaching Strategies:

Discussion, demonstration, simulation, field trip, and multimedia presentation.

Suggested Assessment Strategies:

1. *Understand basic telecommunication applications.*
   a. *Unit test to define terminology associated with telecommunications to include facsimile, telecommunications, bulletin board service (BBS), electronic mail, teleconferencing, file transfer, network, modem, baud rate, host computer, uploading, downloading, local area networks (LAN), wide area networks (WAN), special interest group (SIG), Internet, and online.*
2. *Utilize proper commands to access on-line information.*
   a. *Performance exercise to access a simulated on-line information service; browse through a BBS; post a message on a BBS or SIG; use correct passwords and user ID's for different on-line services; log out of the system and hang up the line; and perform a Boolean search on an on-line encyclopedia.*
   b. *Student report to research periodicals, newspapers, books, and electronic media (BBS and CD-ROM); interpret data; and give an oral presentation on future uses of telecommunications for one of the four career cluster areas.*
   c. *Complete assignments using telecommunication applications as related to academic skills in math, science, and communications.*
   d. *Complete assignments relating to the uses and the benefits of telecommunication applications in the four cluster areas (Agriculture/Natural*

Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

Suggested References:

Ashton, Gary L.; Barksdale, Karl; Rutter, Michael; and Stephens, Earl Jay. Internet Activities: Adventures on the Super Highway. Cincinnati, OH: South-Western Publishing Co. 1995.

Clark, James F. and Oswalt, Beverly. Computer Confidence. Cincinnati, OH: South-Western Publishing Co. 1991.

COMPUTER DIMENSIONS: An Electronic Instructional Media System for Computer Literacy. Cincinnati, OH: South-Western Publishing Company (developed with Aanowitz Productions, Inc., Mill Valley, CA). 1993.

Crawford, T. James; Erickson, Lawrence W.; Beaumont, Lee R.; Robinson, Jerry W.; and Ownby, Arnola C. Century 21: Keyboarding/Formatting Style Manual (4th ed.). Cincinnati, OH: South-Western Publishing Co. 1987.

Cubbler, Charlotte D.; Olivo, John J., Jr.; and Scrogan, Len. Telecommunications: Concepts and Applications. Cincinnati, OH: South-Western Publishing Co. 1992.

Groneman and Jaderstrom. Computer Applications. Cincinnati, OH: South-Western Publishing Company. 1994.

Horizons. Cincinnati, OH. South-Western Publishing Company. 1995.

Info-Bridge (simulation telecommunications software). Cincinnati, OH: South-Western Publishing Co.

Planning My Future (software program). Ogdensburg, NY: Careerware, IMS Information Systems Management Corporation.

Popyk and Maddalena. Humanagement: Activities for Word Processing, Database, Spreadsheet, Graphing and Desktop Publishing. Cincinnati, OH: South-Western Publishing Company. 1993.

Salkind, Neil J. Hands-On Internet for Windows. Danvers, MA: Boyd and Fraser Publishing Co. 1996.

Understanding Computers through Applications. Columbus, OH: Glencoe/Macmillan/McGraw-Hill. 1993.

COMPUTER DISCOVERY
UNIT 8A: TELECOMMUNICATIONS (10 days)
(Internet)

(This unit is to be used as an alternative to Unit 8: Telecommunications in labs which have access to the Internet. The time allocated to this unit is based on the amount of time needed to orient the students to the use of the Internet. Teachers are encouraged to allow students to use this valuable resource throughout the year to gather information for reports and papers in Computer Discovery and other classes.)

Competencies and Suggested Objectives:

1. Understand telecommunication networks and applications.
   a. Define terminology associated with telecommunication networks.
   b. Describe the different components of the Internet.
   c. Certify understanding of "appropriate use" policies related to telecommunication networks.
   d. Apply telecommunication applications to related academic skills in math, science, and communications.
   e. Apply the uses and the benefits of telecommunication applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).
2. Utilize applications of a telecommunication network.
   a. Log-in and log-out of a telecommunication network.
   b. Send and receive messages via e-mail.
   c. Search, retrieve, and download information via gopher.
   d. Search, retrieve, and download information via the World Wide Web.

Suggested Teaching Strategies:

Discussion, demonstration, multimedia presentation, laboratory demonstration, and practice.

Suggested Assessment Strategies:

1. *Understand telecommunications networks and applications.*
   a. *Unit test on terminology associated with telecommunications networks including facsimile, BBS, file transfer, teleconferencing, uploading, downloading, e-mail, Internet, etc.*
   b. *Unit test on components of the Internet including FTP, gopher, newsgroups, and the World Wide Web.*

c. *Sign an "appropriate use" agreement governing use of the school computers in relation to telecommunications network.*
d. *Complete assignments using telecommunication applications to related academic skills in math, science, and communications.*
e. *Complete assignments relating to the uses and the benefits of telecommunication applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology and Health/Human Services Technology).*

2. *Utilize applications of a telecommunications network.*
   a. *Student exercise to log-in and log-out of a telecommunications network.*
   b. *Student exercise to sent and receive messages via e-mail.*
   c. *Student exercise to search, retrieve, and download information via gopher.*
   d. *Student exercise to search, retrieve, and download information via the World Wide Web.*

Suggested References:

Ashton, Gary L.; Barksdale, Karl; Rutter, Michael; and Stephens, Earl Jay. Internet Activities: Adventures on the Super Highway. Cincinnati, OH: South-Western Publishing Co. 1995.

Salkind, Neil J. Hands-On Internet for Windows. Danvers, MA: Boyd and Fraser Publishing Co. 1996.

COMPUTER DISCOVERY
UNIT 9: DESKTOP PUBLISHING (10 days)

Competencies and Suggested Objectives:

1. Understand basic desktop publishing applications.
   a. Identify terminology associated with desktop publishing.
2. Perform basic desktop applications.
   a. Open, save, close, and print a document.
   b. Create a page layout.
   c. Use text tools to create, insert, delete, replace, and move text.
   d. Manipulate graphics by moving, sizing, and deleting.
   e. Import graphics and text.
   f. Use drawing tools to create lines, circles, ovals, and rectangles.
   g. Create a desktop publishing document.
   h. Apply desktop publishing applications to related academic skills in math, science, and communications.
   i. Apply the uses and the benefits of desktop publishihg applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

Suggested Teaching Strategies:

Discussion, demonstration, and multimedia presentation.

Suggested Assessment Strategies:

1. *Understand basic desktop publishing applications.*
   a. *Student assignment to identify terminology associated with desktop publishing to include desktop publishing, layout, clip art, clipboard, landscape, portrait, I-Beam, import, font, gutter, and graphics.*
2. *Perform basic desktop applications.*
   a. *Performance exercise to open, close, print, and save a document.*
   b. *Performance exercise to create a page layout.*
   c. *Performance exercise to use text tools to create, insert, delete, replace, and move text.*
   d. *Performance exercise to manipulate graphics by moving, sizing, and deleting.*
   e. *Performance exercise to import graphics and text.*
   f. *Performance exercise to use drawing tools to create lines, circles, ovals, and rectangles.*
   g. *Performance exercise to create a desktop publishing document to include a graphic or clip art.*

h. *Complete assignments using desktop publishing applications as related to academic skills in math, science, and communications.*

i. *Complete assignments relating to the uses and the benefits of desktop publishihg applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).*

Suggested References:

Belis, Cynthia Braunstein and Dembo, Shirley Schatz. Keyboarding/Information Processing: Supplementary Applications. Cincinnati, OH: South-Western Publishing Co. 1993.

COMPUTER DIMENSIONS: An Electronic Instructional Media System for Computer Literacy. Cincinnati, OH: South-Western Publishing Company (developed with Aanowitz Productions, Inc., Mill Valley, CA). 1993.

EnVision Publisher: Desktop Publishing with Vision. Software Vision Corporation. 1992. (User supported software available through the RCU for evaluation purposes only.)

Halvorson, Michael. Microsoft Works 3.0 for Windows. Cambridge, MA: Course Technology, Inc. 1995.

Horizons. Cincinnati, OH. South-Western Publishing Company. 1995

Pasewark, William R. and Pasewark, William R. Jr. Microsoft Works 3.0 for Windows Tutorial and Applications. Cincinnati, OH: South-Western Publishing Co. 1995.

Steffee, John. Academic Applications Technology. Cincinnati, OH: South-Western Publishing Co. 1996.

Wendt, Debra. Computer Applications: Building Skills for School and Work. Eagan, MN: West Publishing Co. 1992.

COMPUTER DISCOVERY
UNIT 10: COMPUTERS IN CAREERS (5 days)

Competencies and Suggested Objectives:

1. Recognize the importance of computer literacy and work maturity skills in today's job market.
   + a. Assemble a Computer Discovery portfolio to demonstrate competence in computer-related skills.
   b. Working as part of a team, produce an integrated project.

+ Indicates cumulative data for Unit 10: Computers in Careers.

Suggested Teaching Strategies:

Discussion, field trips, and guest speakers.

Suggested Assessment Strategies:

1. Recognize the importance of computer literacy and work maturity skills to today's job market.
   + a. Performance exercise to assemble a Computer Discover portfolio to demonstrate competence in computer-related skills to include a personal data sheet, letter of application, and work samples produced in computer applications.
   b. Performance exercise for student to work as part of a team, to demonstrate human relations skills and job-specific skills introduced during the year by completing an integrated project.

+ Indicates cumulative data for Unit 10: Computers in Careers.

Suggested References:

Clark, James F. and Oswalt, Beverly. Computer Confidence. Cincinnati, OH: South-Western Publishing Co. 1991.

COMPUTER DIMENSIONS: An Electronic Instructional Media System for Computer Literacy. Cincinnati, OH: South-Western Publishing Company (developed with Aanowitz Productions, Inc., Mill Valley, CA). 1993.

Horizons. Cincinnati, OH: South-Western Publishing Company. 1995.

Steffee, John. Academic Applications Technology. Cincinnati, OH: South-Western Publishing Co. 1996.

Understanding Computers through Applications. Columbus, OH: Glencoe/Macmillan/ McGraw-Hill. 1993.

Wendt, Debra. Computer Applications: Building Skills for School and Work. Eagan, MN: West Publishing Co. 1992.

APPENDIX A:

STUDENT COMPETENCY PROFILE

STUDENT COMPETENCY PROFILE FOR COMPUTER DISCOVERY

Student: _____

This record is intended to serve as a method of noting student achievement of the objectives in each unit. It can be duplicated for each student and serve as a cumulative record of competencies achieved in the course.

In the blank before each competency, place the date on which the student mastered the competency.

Unit 1: Introduction to Computer Discovery

_____ 1. Understand basic computer usage.
   a. Describe the uses and the benefits of the computer in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).
   b. Identify and describe the use or function of the basic components of a computer system.
   c. Identify terminology associated with computers including hardware, software, data, CRT, ROM, RAM, peripheral, file, default, documentation, and graphical user interface environment.
   d. Interpret trends and changes as related to one of the four clusters.
   e. Describe the uses and benefits of the computer to related academic skills in math, science, and communications.
   f. Discuss ethics in relation to computer applications.

_____ 2. Perform basic computer operations related to computer usage.
   a. Demonstrate precautions and care when working with computers, printers, storage devices, and other accessories.
   b. Discuss and/or illustrate setting up and adjusting a simple computer system.
   c. Discuss and/or demonstrate the ability to adjust monitor controls and load paper into the printer (setting top of form and margins).

_____ 3. Analyze career interests and opportunities available.
   a. Complete and review surveys on interests, spare time, school subjects, skills, and summer jobs and develop planning strategies for future careers.

Unit 2: Keyboarding

_____ 1. Perform basic keyboarding applications.
   a. Demonstrate proper use of the keyboard by touch. (ongoing)
   b. Identify and use the operation/function and numeric keys on a computer keyboard.

Unit 3: Introduction to Windows

_____ 1. Understand basic Windows applications.
   a. Identify terminology related to Windows.

_____ 2. Perform basic Windows applications.
   a. Use menus, icons, and Windows to open and close a window, switch windows, and move between applications.
   b. Apply basic Windows applications to related academic skills in math, science, and communications.

Unit 4: Operating System Using Windows

_____ 1. Utilize proper commands for basic operation systems applications in Windows.
   a. Explain how the operating system software controls input, processing, and output.
   b. Load and reset a disk operating system (cold boot and warm boot).
   c. Name files following guidelines set by the operating system documentation.
   d. Access different disk drives in a computer system.
   e. Perform fundamental disk operating system commands using graphical interface (Windows).

Unit 5: Word Processing Applications

_____ 1. Perform basic word processing applications.
   a. Use basic word processing commands.
   b. Use basic text formatting procedures.
   c. Use basic editing/proofing procedures.
   d. Store a file to disk, exit and re-enter the program, and retrieve the file.
   e. Produce, in hard copy, a memo following an accepted business format.
   f. Produce, in hard copy, a letter of application following an accepted business format.
   g. Produce, in hard copy, a multi-page report (minimum of 2 pages) following an accepted business format.
   h. Demonstrate composition skills by composing and keying answers to sample job interview questions.
   i. Create a personal data sheet.
   j. Apply word processing applications to related academic skills in math, science, and communications.
   k. Apply the uses and the benefits of word processing applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

Unit 6: Data Management Applications

_____ 1. Understand basic data management applications.
   a. Identify terminology used with data management applications.

_____ 2. Perform basic data management applications.
   a. Create and save a database file.
   b. Retrieve and manipulate data within a database file.
   c. Generate a report from a database file.
   d. Design, create, and save a database file.
   e. Apply data management applications to related academic skills in math, science, and communications.
   f. Apply the uses and the benefits of data management in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

Unit 7: Spreadsheet Applications

_____ 1. Understand basic spreadsheet applications.
   a. Identify terminology used with spreadsheet applications.

_____ 2. Perform basic spreadsheet applications.
   a. Demonstrate the use of basic spreadsheet format commands.
   b. Write formulas using basic arithmetic operations.
   c. Demonstrate the use of basic spreadsheet functions.
   d. Develop, enter, and modify data; save, exit, and retrieve; and print a hard copy of a simple spreadsheet file.
   e. Graph spreadsheet data.
   f. Apply spreadsheet applications to related academic skills in math, science, and communications.
   g. Apply the uses and the benefits of spreadsheet applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

Unit 8: Telecommunications (To be used in labs that do not have access to the Internet)

_____ 1. Understand basic telecommunication applications.
   a. Define terminology associated with telecommunications.

_____ 2. Utilize proper commands to access on-line information.
   a. Perform telecommunication activities.
   b. Research periodicals, newspapers, books, and electronic media (BBS and CD-ROM); interpret data; and give an oral presentation.
   c. Apply telecommunication applications to related academic skills in math, science, and communications.

d. Apply the uses and the benefits of telecommunications applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

Unit 8-A: Telecommunications (Internet)

_____ 1. Understand telecommunications networks and applications.
   a. Define terminology associated with telecommunications networks.
   b. Describe the different components of the Internet.
   c. Certify understanding of "appropriate use" policies related to telecommunications networks.
   d. Apply telecommunication applications to related academic skills in math, science, and communications.
   e. Apply the uses and the benefits of telecommunications applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

_____ 2. Utilize applications of a telecommunications network.
   a. Log-in and log-out of a telecommunications network.
   b. Send and receive messages via e-mail.
   c. Search, retrieve, and download information via gopher.
   d. Search, retrieve, and download information via the World Wide Web.

Unit 9: Desktop Publishing

_____ 1. Understand basic desktop publishing applications.
   a. Identify terminology associated with desktop publishing.

_____ 2. Perform basic desktop applications.
   a. Open, save, close, and print a document.
   b. Create a page layout.
   c. Use text tools to create, insert, delete, replace, and move text.
   d. Manipulate graphics by moving, sizing, and deleting.
   e. Import graphics and text.
   f. Use drawing tools to create lines, circles, ovals, and rectangles.
   g. Create a desktop publishing document.
   h. Apply desktop publishing applications to related academic skills in math, science, and communications.
   i. Apply the uses and the benefits of desktop publishing applications in the four cluster areas (Agriculture/Natural Resources Technology, Business/Marketing Technology, Engineering/Industrial Technology, and Health/Human Services Technology).

Unit 10: Computers in Careers

_____ 1. Recognize the importance of computer literacy and work maturity skills in today's job market.

a. Assemble a Computer Discovery portfolio to demonstrate competence in computer-related skills.

b. Working as part of a team, produce an integrated project.